What is claimed is:

1. A catheter shaft comprising:

a first tube including a lumen, an inside wall surface, and an outside wall surface, said first tube having an orifice in a proximal portion of said first tube;

a second tube inserted through, and extending distally from, said orifice, said second tube having a length, a lumen therethrough, a proximal portion, an inside wall surface and an outside wall surface; and

a bonding region bonding said second tube outside wall surface to said first tube wall surface, said second tube inside wall surface being formed of a second, lubricious material for a majority of said second tube length, said first tube wall having a layer of a first, flexible material extending for a majority of said first tube length, said first material being different from said second material.

2. A catheter shaft as recited in claim 1, wherein said bonding region is proximate said orifice.

3. A catheter shaft as recited in claim 1, wherein said bonding region includes bonding between said first tube outside surface and said second tube outside surface proximal of said orifice and said bonding region includes bonding between said first tube inside surface and said second tube outside surface distal of said orifice.

4. A catheter shaft as recited in claim 1, wherein said second tube inside and outside wall surfaces are formed of said second material.

5. A catheter shaft as recited in claim 4, wherein said second tube wall is formed of substantially said second material therethrough.

6. A catheter shaft as recited in claim 5, wherein said first tube inside surface is formed of said second material proximate said bonding region.

7. A catheter shaft as recited in claim 6, wherein said first tube has said second material disposed over most of said first tube inside surface proximate said bonding region and distal of said bonding region.

8. A catheter shaft as recited in claim 7, wherein said first tube includes said second material as an inside layer, said first material as an outside layer, and a tie-layer disposed between said inside and outside layers.

9. A catheter shaft as recited in claim 6, wherein said second tube includes polyethylene, said first tube includes an inside layer of polyethylene, an outside layer of PEBA, and a tie-layer disposed between said inside and outside layers.

10. A catheter shaft as recited in claim 6, wherein said first tube has said inside surface formed of said second material proximate said bonding region and has said inside surface formed of said first material distal of said bonding region.

11. A catheter shaft as recited in claim 10, further comprising a transition tie-layer disposed between said first and second materials.

12. A catheter shaft as recited in claim 11, wherein said second tube includes polyethylene and said first tube includes polyethylene proximate said bonding region and said first tube is formed of PEBA distal of said tie-layer.

13. A catheter shaft as recited in claim 1, wherein said first tube inside surface includes said first material.

14. A catheter shaft as recited in claim 13, wherein said first tube inside and outside surfaces are formed of said first material.

15. A catheter shaft as recited in claim 14, wherein said first tube is formed of said first material proximate said bonding region and distal of said bonding region.

16. A catheter shaft as recited in claim 15, wherein said second tube has a proximal portion proximate said bonding region having an outside surface formed of said first material.

17. A catheter shaft as recited in claim 15, wherein said second tube is formed of said first material in said proximal portion and formed of said second material distal of said proximal portion and has a transition tie-layer therebetween.

18. A catheter shaft as recited in claim 17, wherein said first material includes PEBA and said second material includes polyethylene.

19. A catheter shaft as recited in claim 15, wherein said second tube is formed of said second material, said second tube proximal portion includes a tie-layer disposed over said second material and an outer layer of said first material disposed over said tie-layer.

20. A catheter shaft as recited in claim 19, wherein said first material includes PEBA and said second material includes polyethylene.

21. A catheter shaft as recited in claim 15, wherein said second tube has said inside layer formed of said second material, a tie-layer disposed over said inside layer, and an outside layer formed of said first material disposed over said tie-layer.

22. A catheter shaft as recited in claim 21, wherein said first material includes PEBA and said second material includes polyethylene.

23. A catheter shaft as recited in claim 15, wherein said second tube proximal portion is formed of said first material and said second tube distal of said proximal portion is bonded to said proximal portion and has an inside layer formed of said second material, a tie-layer disposed over said inside layer, and an outer layer formed of said second material disposed over said tie-layer.

24. A catheter shaft as recited in claim 23, wherein said first material includes PEBA and said second material includes polyethylene

25. A catheter shaft as recited in claim 15, wherein said second tube proximal and distal portions have an inside layer formed of said second material and an outside tie-layer disposed over said inside layer.

26. A catheter shaft as recited in claim 25, wherein said first material includes PEBA and said second material includes polyethylene, wherein said second tube outside tie-layer wall surface is heat bonded to said first tube inside wall PEBA surface proximate said orifice.

27. A catheter shaft comprising:

a first tube including a lumen, an inside wall surface, and an outside wall surface;

a second tube disposed at least partially within said first tube, said second tube having a length, a lumen therethrough, an inside wall surface and an outside wall surface; and

a bonding region bonding said second tube outside wall surface to said first tube wall surface, said second tube inside wall surface being formed of a second material for a majority of said second tube length, said first tube wall having a layer of a first material extending for a majority of said first tube length, said first material being different from said second.

28. A catheter shaft as recited in claim 27, wherein said first material and said second material form weak bonds when heat bonded to each other.

29. A catheter shaft as recited in claim 28, wherein said bonding region includes bonding between said first tube inside surface and said second tube outside surface.

30. A catheter shaft as recited in claim 27, wherein said bonding region includes bonding between said first tube inside surface and said second tube outside surface.

31. A catheter shaft as recited in claim 27, wherein said second tube wall is formed of substantially said second material therethrough.

32. A catheter shaft as recited in claim 31, wherein said first tube inside surface is formed of said second material proximate said bonding region.

33. A catheter shaft as recited in claim 32, wherein said first tube has said second material disposed over most of said first tube inside surface proximate said bonding region and distal of said bonding region.

34. A catheter shaft as recited in claim 33, wherein said first tube includes said second material as an inside layer, said first material as an outside layer, and a tie-layer disposed between said inside and outside layers.

35. A catheter shaft as recited in claim 32, wherein said first tube has said inside surface formed of said second material proximate said bonding region and has said inside surface formed of said first material distal of said bonding region.

36. A catheter shaft as recited in claim 35, further comprising a transition tie-layer disposed between said first and second materials.

37. A catheter shaft as recited in claim 36, wherein said second tube includes polyethylene and said first tube includes polyethylene proximate said bonding region and said first tube is formed of PEBA distal of said tie-layer.

38. A catheter shaft as recited in claim 27, wherein said first tube inside surface includes said first material.

39. A catheter shaft as recited in claim 38, wherein said first tube inside and outside surfaces are formed of said first material.

40. A catheter shaft as recited in claim 39, wherein said first tube is formed of said first material proximate said bonding region and distal of said bonding region.

41. A catheter shaft as recited in claim 40, wherein said second tube has a proximal portion proximate said bonding region having an outside surface formed of said first material.

42. A catheter shaft as recited in claim 40, wherein said second tube is formed of said first material in said proximal portion and formed of said second material distal of said proximal portion and has a transition tie-layer therebetween.

43. A catheter shaft as recited in claim 40, wherein said second tube is formed of said second material, said second tube proximal portion includes a tie-layer disposed over said second material and an outer layer of said first material disposed over said tie-layer.

44. A catheter shaft as recited in claim 40, wherein said second tube has said inside layer formed of said second material, a tie-layer disposed over said inside layer, and an outside layer formed of said first material disposed over said tie-layer.

45. A catheter shaft as recited in claim 40, wherein said second tube proximal portion is formed of said first material and said second tube distal of said proximal portion is bonded to said proximal portion and has an inside layer formed of said second material, a tie-layer disposed over said inside layer, and an outer layer formed of said second material disposed over said tie-layer.

46. A catheter shaft as recited in claim 40, wherein said second tube proximal and distal portions have an inside layer formed of said second material and an outside tie-layer disposed over said inside layer.

47. A catheter shaft comprising:

a first tube including a lumen, an inside wall surface, and an outside wall surface;

a second tube having at least a portion disposed outside of said first tube, said second tube having a length, a lumen therethrough, an inside wall surface and an outside wall surface; and

a bonding region bonding said second tube outside wall surface to said first tube outside wall surface, said second tube outside wall surface being formed of a second material for a majority of said second tube length, said first tube wall having a layer of a first material extending for a majority of said first tube length, said first material being different from said second.

48. A catheter shaft as recited in claim 47, wherein said first material includes PEBA and said second material includes polyethylene.